

III. REMARKS

Status of the Claims

Claims 11 is amended. Claims 2, 4, 5, and 11 are presented for further consideration.

Applicant has amended independent claim 11 to clarify the novel features of the invention for which protection is sought in this application. In particular applicant has amended claim 11 to positively claim a fastener system that comprises a fastener and a driver. No new subject matter is claimed and further searching should not be needed. This amendment is submitted in response to the Examiner's indication that, as previously worded, the claim was in part directed to an intended use, more specifically because, according to the Examiner's interpretation, the driver was not positively claimed. The driver is now positively claimed and therefore, significant patentable weight should be given to the complete structure of the interference fit.

The Office Action and Responsive Remarks

Claims 11 is amended for clarification. No new matter is presented. The amendments to the claims are not intended to be further limiting, and should not be interpreted to raise issues of estoppel.

Applicant has considered the Examiner's comments set forth in the Office Action mailed January 24, 2007.

Reconsideration of the application is respectfully requested.

The Office Action

As a review, Applicant, during the prosecution of this application, submitted samples of fasteners manufactured according to the reference Stacy, samples of fasteners

manufactured according to the subject application and a sample of a driver common to both. The Examiner has acknowledged, that the Stacy fasteners did not include the stick-fit feature. The performance of the structure of the fastener system of this application has been successfully demonstrated.

As stated in the application and according to claim 11, as amended, the purpose of the interference surfaces, constructed in the recess of the fastening system of this invention, is to generate a frictional engagement of a driver with the fastener. In this way the driver sticks to the fastener to facilitate installation of the fastener. This feature is commonly called a "stick fit" in the art. It is technically an interference fit between the driver and the fastener. This feature has been amply demonstrated as indicated above.

As a reminder, an interference fit is known as a force fit used to generate a frictional engagement between two objects so that they are held in engagement. These words do not include two surfaces that may be merely engaged by movement of one against the other as is the case of the engagement of driver and fastener in prior art spiral fasteners. The engagement of the driver with the installation or removal walls of the recess of the fastener of Stacy, for example, is not an interference or force fit. Mere engagement does not qualify. The surfaces of the reference Stacy, or any of the new references cited in the current office action, do not teach the generation of an interference fit, stick fit or the like, between recess and driver by interference between the specific surfaces of the recess and the driver as described in claim 11.

The subject matter of this application is directed to the problem of providing a "stick fit" feature in conjunction with a fastener having a recess that utilizes spiral shaped wings as described in the reference Stacy. Such a feature has not been previously available because of the difficulty of manufacture.

Claims 4, 5 and 11 stand rejected under 35USC103(a) based on the combined disclosures of the reference Toyooka, et al, U.S. Patent No. 7,077,038 and Lee, U.S. Patent No. 5,598,753. The Examiner is respectfully requested to reconsider the rejection in view of the above amendments and the following remarks. This rejection is traversed on the following grounds:

The combined teaching of Toyooka and Lee does not render claims 4,5, and 11 obvious because it fails to teach or otherwise suggest each and every limitation of the claims. It is well settled that in order to establish a prima facie case for obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, without reference to the disclosure of this application. (MPEP Section 2142) ***In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria."**

The claims of this application positively claim structures of a fastener recess and driver that are constructed to generates an interference fit as follows:

"a non-driving transition surface extending between each of the installation and removal walls of adjacent wings, at the radially inner most extent of said wings, each of said transition surfaces formed having an interference contour extending radially inward into the central portion, said contour being tapered from a first radial distance from the longitudinal axis at a top portion thereof to a second radial distance from said longitudinal axis at a bottom portion thereof; and

wherein said first radial distance is larger than said second radial distance and wherein said interference contours of said transition surfaces are diametrically opposed across said recess;

a driver constructed with driving surfaces shaped to engage the spirally shaped installation and removal walls of the recess, said driver having non-driving surfaces constructed in grooves between said driving surfaces; and

further wherein said interference contours of said transition surfaces of said recess cooperate to form an interference fit with the non-driving surfaces in the grooves of the driver.

The Examiner has characterized the surfaces 14 of the recess described in the reference Toyooka as:

"forming an interference contour extending radially inward towards a central portion.....wherein the recess is configured to form an interference fit with a driver"

This characterization is not supported by the cited reference. There is no mention of an interference fit between the recess and driver of Toyooka, but the reference teaches away from such a structure. The recess and driver of Toyooka are specifically constructed to increase the surface area of driving engagement between the cruciform shaped recess and driver. Protrusions 14 between the engaging grooves of the recess are described at column 5, lines 18-27, as follows:

"Note that in this embodiment, the distance "L" between facing two of each protrusion 14, which are between the engaging grooves 11 of the drive recess 10, is determined so that a little interspace is formed between the protrusions 14 and the bottom face of the corresponding groove 23 of the driver bit 20 when the drive head of the driver bit 20 is engaged with the drive recess 10."

This teaches that the surfaces 14 of the recess and surfaces 23 of the driver grooves are constructed to avoid the interference fit as claimed in this application. The embodiment of figure 5 is also constructed in the same manner (see column 6, lines 27-33).

It is therefore irrelevant how the Examiner seeks to modify the teaching of Lee to obtain the spiral shaped recess of the subject invention as whatever the result, the combined teaching cannot teach the construction of an interference fit as described in the claims of this application.

It is improper for the Examiner to rely on bits and pieces of a reference in isolation to find a claimed invention obvious under 35USC103 where an objective reading of the

entire disclosure of the cited patent teaches away from the claimed invention. (Akzo N.V. v United States International Trade Commission, 808F.2nd 1471). One of ordinary skill in the art would not have been motivated to contravene the stated recommendations of Toyooka to obtain the subject matter of the claims of this application.

Claims 4, 5 and 11 stand rejected under 35USC103(a) based on the combined disclosures of the reference Smith, et al, U.S. Patent No. RE 24,878 and Lee, U.S. Patent No. 5,598,753. The Examiner is respectfully requested to reconsider the rejection in view of the above amendments and the following remarks. This rejection is traversed on the following grounds:

As indicated above, the combined teaching of Smith and Lee does not render claims 4, 5, and 11 obvious because it fails to teach or otherwise suggest each and every limitation of the claims. It is well settled that in order to establish a prima facie case for obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, without reference to the disclosure of this application. (MPEP Section 2142) ***In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria."**

The Examiner characterizes the structure of the recess of Smith according to the following:

"wherein the recess is configured to form an interference fit with a driver (driver not claimed, so this limitation has not been given significant patentable weight as being directed towards an intended use of the fastener). The transition surfaces are used to help prevent rock out."

Applicant submits that because of the amendment to claim 11, a driver is now positively claimed and the limitation directly recites the structure of the interference fit of the fastener system. This limitation should be given significant patentable weight. Nevertheless the reference Smith fails to support the Examiner's characterization. There is no mention of a structure designed to generate an interference fit between recess and driver. Applicant submits that the term "rock out" is likely to refer to a characteristic of a cruciform recessed fastener called "cam out" which refers to the tendency of the driver to move outward on the drive surfaces as a torque is applied. This has little, if not nothing, to do with stick-fit. The walls 17 and 18 of the recess 12 of Smith are constructed "for present purposes" as substantially vertical aside from a negligible taper resulting from manufacturing tolerances (see column 3, line 67 through column 4, line 15). The walls 17 and 18 are positioned to enlarge the central recess section 12, thereby allowing a stronger driver to be used (see column 4, lines 46-57). The walls 17 and 18 are replaced in the embodiment of figures 4 and 5 with a curved wall 25 or single flat wall 26, (see column 5, lines 12-18). It is apparent, therefore, that there is no teaching of an interference fit in the reference Smith.

The teaching of Lee fails to remedy the deficiency of Smith. The combined teaching of Smith and Lee, therefore, fails to support the rejection based on obviousness. The modification of the teachings of Smith or Lee, in order to obtain the invention, as described in the claims submitted herein, would not have been obvious to one skilled in the art.

Claims 2, 4, 5 and 11 stand rejected under 35USC103(a) based on the combined disclosures of the reference Smith, et al, U.S. Patent No. RE 24,878 and Stacy, U.S. Patent No. 5,947,645. The Examiner is respectfully requested to reconsider the rejection in view of the above amendments and the following remarks. This rejection is traversed on the following grounds:

The combined teaching of Smith and Stacy does not render claims 2, 4, 5, and 11

obvious because it fails to teach or otherwise suggest each and every limitation of the claims. It is well settled that in order to establish a prima facie case for obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, without reference to the disclosure of this application. (MPEP Section 2142) ***In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria.”**

The teaching of Smith fails to teach a fastener system having an interference fit structure for the reasons expressed above. It has been repeatedly acknowledged that there is no interference fit between the recess and driver of Stacy. Therefore, the combined teaching of Smith and Stacy fail to teach or suggest the fastening system of the claims of this application.

Claims 2 and 11 are rejected as being unpatentable over the combined teaching of Toyooka and Stacy. The Examiner is respectfully requested to reconsider the rejection in view of the above amendments and the following remarks. This rejection is traversed on the following grounds:

The combined teaching of Smith and Stacy does not render claims 2, and 11 obvious because it fails to teach or otherwise suggest each and every limitation of the claims for the reasons stated above.

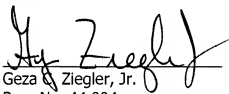
As discussed in this application, the forming of the recess of this application is difficult and has hindered the construction of a spiral fastener with the “stick fit” feature. This is because the substantially vertical driving walls of the wings and the high contour and limited surface area of the transition surface between wings provides very limited surface area with which to work. Accordingly, the use of the transition surfaces to generate an interference fit has not been considered. The result, as demonstrated by

the samples submitted by applicant, is surprising, as the useful surface area between wings is very limited. Nevertheless, Applicant has produced a very effective "stick fit" feature. The use of this limited surface area to provide an interference fit is not obvious based on the cited references. This feature provides a significant improvement in the use of spiral wing fasteners.

For all of the above reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,



Geza C. Ziegler, Jr.
Reg. No. 44,004

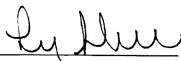
16 April 2003
Date

Perman & Green, LLP
425 Post Road
Fairfield, CT 06824
(203) 259-1800
Customer No.: 2512

CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this correspondence is being transmitted electronically, on the date indicated below, addressed to the Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: 10 April 2007

Signature: 

Lisa Shimizu
Person Making Deposit